

In the Claims:

1. (Currently Amended) A polymer electrolyte comprising a proton conductive polymer (A) and a cross linking polymer (B) which is different from (A) wherein a ratio of the amount of unfreezable water, represented by formula (S1), in said polymer electrolyte is no less than 40 wt% and no greater than 100 wt%, wherein the ratio of amount of unfreezable water (S1) = (amount of unfreezable water) / (amount of low melting point water + amount of unfreezable water) × 100 (%) and wherein the ratio of the amount of unfreezable water in the polymer electrolyte to the weight of the polymer electrolyte when dried, which is represented by formula (S2), is no less than 20% and no higher than 200%, wherein the content of unfreezable water (S2) = (amount of unfreezable water in polymer electrolyte) / (weight of polymer electrolyte when dried) × 100 (%).

2. (Cancelled).

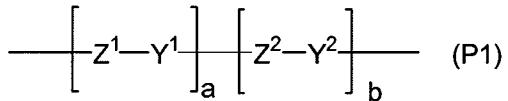
3. (Previously Presented) The polymer electrolyte according to Claim 1, characterized in that the proton conductive polymer (A) is a non-perfluorinated proton conductive polymer.

4. (Previously Presented) The polymer electrolyte according to Claim 3, wherein said non-perfluorinated proton conductive polymer comprises an anionic group selected from a group consisting of a sulfonic acid group, a sulfone imide group, a sulfuric acid group, a phosphonic acid group, a phosphoric acid group and a carboxylic acid group.

5. (Previously Presented) The polymer electrolyte according to Claim 3, wherein said non-perfluorinated proton conductive polymer is a proton conductive polymer having a polar group in a main chain.

6. (Previously Presented) The polymer electrolyte according to Claim 5, wherein the polar group comprises a moiety selected from the group consisting of a sulfonyl group, an oxy group, a thio group, a carbonyl group, a phosphine oxide group, a phosphonate group, an ester group, an amide group, an imide group and a phosphagen group in said proton conductive polymer.

7. (Previously Presented) The polymer electrolyte according to Claim 5, wherein said proton conductive polymer comprises an aromatic based polymer having repeating units that can be represented by the following formula (P1)



wherein, Z^1 and Z^2 indicate an organic group that includes an aromatic ring and each of these may indicate two or more types of groups; Y^1 indicates an electron withdrawing group; Y^2 indicates O or S; and a and b indicate independent integers from 0 to 2, where a and b are not zero simultaneously.

8. (Currently Amended) The polymer electrolyte according to Claim 1, wherein ~~said polymer (B) is a cross linking polymer and said~~ proton conductive polymer (A) is substantially uniformly mixed with the cross linking polymer (B).

9. (Previously Presented) The polymer electrolyte according to Claim 8, wherein said cross linking polymer (B) comprises a moiety selected from the group consisting of a radical polymerizing polymer, an epoxy based polymer, a melamine based polymer, a phenol resin based polymer, a urethane based polymer, a urea based polymer and an inorganic cross linking polymer.

10. (Previously Presented) The polymer electrolyte according to Claim 9, wherein said cross linking polymer (B) is an inorganic cross linking polymer, and the inorganic cross linking polymer has an anionic group.

11. (Previously Presented) The polymer electrolyte according to Claim 10, wherein the anionic group of said inorganic cross linking polymer comprises a moiety selected from the group consisting of a sulfonic acid group, a sulfone imide group, a phosphonic acid group, a phosphoric acid group and a carboxyl group.

12. (Previously Presented) A polymer electrolyte membrane comprising the polymer electrolyte according to Claim 1.

13. (Previously Presented) A membrane electrode assembly, comprising the polymer electrolyte according to Claim 1.

14. (Previously Presented) A polymer electrolyte fuel cell, comprising the polymer electrolyte according to Claim 1.

15. (Previously Presented) The polymer electrolyte fuel cell according to Claim 14, wherein the fuel cell is a direct type fuel cell adapted to use a fuel comprising alcohol and dimethyl ether.

16. (Previously Presented) A membrane electrode assembly, comprising the polymer electrolyte membrane according to Claim 12.

17. (Previously Presented) A polymer electrolyte fuel cell, comprising the polymer electrolyte membrane according to Claim 12.

18. (Currently Amended) The polymer electrode fuel cell of claim 15, wherein the fuel further comprises water and the alcohol dimethyl ether has a carbon number of 1 to 3.